AMENDMENTS TO THE SPECIFICATION:

Please amend the specification as follows:

Please delete the paragraph on page 25, lines 4-21, and replace it with the following paragraph:

Figure 6~~6a~~ illustrates one example of an arrangement of calcium media which may be used in reaction chamber 140. Section 108 of chamber 140 is filled with calcite 142, which is surrounded by crushed coral 143. In one embodiment, the calcite media may be in the form of sand, which is contained in a water permeable bag. This arrangement has the benefit of preventing clogs in the chamber, since the water can easily circulate through the crushed coral surrounding the calcite. The calcite is beneficial for aquariums containing coral, algae, and invertebrate, which use calcite to make their skeletons and/or shells. In~~Figure 6b shows~~ an alternative embodiment (not shown) for chamber 140, ~~where~~ a calcium media fills the lower portion of section 108, while activated carbon ~~145~~ is placed in the top portion of section 108. The activated carbon in section 109 remains dry, while water flows through the activated carbon in section 108. In this embodiment, hydrogen sulfide gas is removed from the water by the activated carbon in section 108, while the activated carbon in section 109 reduces hydrogen sulfide gas emissions, similarly as described above with respect to the activated carbon chamber of Figure 16. The volume of activated carbon in section 108 may be approximately equal to the volume of dry activated carbon in section 109, although the amounts in either section may be optimized to provide the desired contact time between the activated carbon and either the water in section 108 or the emissions in section 109, in order to obtain the desired benefits of the activated carbon.

Please delete the paragraph on page 28, lines 13-20, and replace it with the following paragraph:

A section of tubing may be~~101d is~~ used to connect a vent (not shown)~~101c~~ with one of the vents 150 in order to equalize the pressure between the inlet and the Nitrafix chambers. This helps to ensure that the level of water in the clear plastic tube 101b accurately reflects the level of water in the Nitrafix. When water is flowing through the Nitrafix system properly, the level of water in the clear tube 101b should be at about the same level as the outlet 141. If the level of water in tube 101b is lower than the outlet 141, an air bubble may be formed in the outlet tube, or the system may be clogged. If the water is flowing through the clear elbow 141a above the outlet on the outlet side, then the system is overflowing.

Please delete the paragraph on page 32, lines 19-22, to page 33, lines 1-3, and replace it with the following paragraph:

Before the water being treated by the embodiment of Figure 8 is returned to the aquarium tank, it is preferable to add oxygen to the water, especially for large aquariums of, for example, 10,000 gallons or more. A degassing chamber, such as a protein skimmer or other conventional degassing chamber, may be used to accomplish this. One example of a novel protein skimmer which may be used will be discussed below in the description of Figures 20 to~~and~~ 22. Additionally, the oxytower, as discussed above, may also be used to add oxygen to the water.

Please delete the paragraph on page 43, lines 1-8, and replace it with the following paragraph:

Other systems may also be used for large aquariums~~,~~. For example, water from the denitration chambers can be directed to one or more of the following systems, in addition to or in place of a calcium chamber or chambers: a protein skimmer 650, a degassing tower 660, an oxytower 670, and a desulfator 680. While protein skimmer 650, degassing tower 660, oxytower 670, and desulfator 680, are being described here in connection with the embodiment of Figure 17 for use with large aquariums, they are also contemplated for use with aquariums of any size, including home aquariums of 50 gallons or less.

Please delete the paragraph on page 44, lines 12-23, to page 45, lines 1-2, and replace it with the following paragraph:

The inlet channel 653a of the eductor, which may be, for example, a nozzle, is located near the flared inlet of the mixing channel 653b, so that a central longitudinal axis of the inlet channel 653a is aligned along the central longitudinal axis of the mixing channel 653b, in a manner which allows water from the chamber 651 to be entrained through the opening 653d between the outside of the inlet channel and the inside of the flared inlet region of the mixing channel. To be efficient, the stream of water from inlet 653a preferably entrains a relatively large amount of water from chamber 651 as it flows into mixing channel 653b, so that the flow of water through the channel 653b is significantly greater than the flow from inlet 653a. For example, as illustrated in Figure 21b, the flowrate "B~~A~~" of water entrained may be 3 to 6 times greater, and is preferably 4 times greater, than the flowrate "A~~B~~" from inlet 653a. The flowrate of water exiting the eductor is thus "A" + "B." In this manner, the use of the eductor in the protein

skimmer allows for a relatively large volume of water to be mixed with gas utilizing a relatively small amount of power.

Please delete the paragraph on page 45, lines 21-23, to page 46, lines 1-7, and replace it with the following paragraph:

The mixing eductor, including the nozzle, mixing chamber and tubing may be made of various materials, such as plastic or metal. Specific examples of such materials include PVC, polyethylene, polypropylene, methacrylic or acrylic plastic, fiber glass reinforced plastic (FRP), or stainless steel. Any other materials, known in the art for making eductors, may also be used. The mixing eductor is contemplated for use in other applications. For example, rather than a gas, a liquid may be flowed through tubing 653c, so that multiple liquids may be mixed together. Additionally, more than one tube 653c may be positioned in the mixing channel. For example, mixing eductors having two, three, four or more tubes positioned in the mixing channel in a manner similar to tube 653c are contemplated. A 3-dimensional view of an embodiment of the eductor is illustrated by Figure 21c.

Please delete the paragraph on page 49, lines 3-14, and replace it with the following paragraph:

The oxytower of the present invention is in the shape of an inverted truncated cone, having side walls 671a that slope inward at an angle θ_{oxy} of, for example, 5 to 45 degrees, and more preferably 10 to 20 degrees, as shown in Figure 18a. A medium, such as a screen 672, is placed on the inner surface of the cone and serves as support for the growth of algae in the oxytower. A pipe 675a or other means, such as a gutter, for channeling water is located along the top inner circumference of the oxytower

chamber. The pipe 675a has a plurality of outlets 676, such as holes or jets, located along its outer circumference through which water may be dripped or sprayed along the top surface of the screen. The pipe 675a is connected onto the wall of the oxytower by supports 675b, as shown in Figure 18b. An artificial light 673 is applied to support photosynthesis by the algae growing on the screens. Alternatively, the oxytower may be placed so it is subjected to sunlight during the day.

Please delete the paragraph on page 49, lines 15-22, to page 50, lines 1-2, and replace it with the following paragraph:

During operation of the oxytower, water flows into pipe 675a through inlet 674, and is dripped or sprayed from outlets 676 onto the top of the screens 672. The water then drips down the screens by force of gravity. As the water drips down the screen surface, the screen will break up the water and cause an increase in surface area, which will allow for the water to be effectively degassed. Additionally, algae growing on the screens will remove unwanted contaminants in the water, such as phosphates, nitrates, nitrites and heavy metals, which the algae uses for nutrients as it grows. The water then flows out of the tower through outlet 677. Water from the outlet may be passed through strainer or mechanical filter 678a for removing debris from the water. As shown in Figure 18a, a trap basket 678b may be used for holding the removed debris.

Please delete the paragraphs on page 57, lines 4-22, and replace them with the following paragraphs:

Water flows from aquarium or aqua tank 116~~100~~ to a filter 101. This filter is preferably a mechanical filtration device which allows the water to pass through the filter

without pressurization from a filter pump, thus saving power. However, any filter known in the art may be used, including filters requiring a filter pump. The filter removes particulates from about 30 microns to about 200 microns from the water. Examples of filters which are known in the art include a drum filter, a disk filter, and a sock filter.

Water next flows from filter 101 to a sump 102. Sump 102 preferably has a volume which is large enough to prevent overflow of water from the system when the system is stopped. Both mechanical filter 101 and sump 102 may be placed at elevations which are lower than aquarium or aqua tank 116~~100~~ in order to allow water to run from the aquarium or aqua tank 116~~100~~ to the mechanical filtration device and sump by force of gravity, which will save energy and lower the cost of operation. If filter 101 and sump 102 are not placed at elevations lower than aquarium 100, then a pump may be used to pump water from aquarium 100 to filter 101 and sump 102.

From sump 102, water flows to a number of other processing apparatus which further purify and condition the water. These apparatus include a bio-filter 107; a protein skimmer 109; an oxytower 110; a denitration system 112, a desulfator 111; an optional heater or chiller 114, for adjusting the temperature of the water; and a UV sterilizer 113, for sterilizing the water before it returns to aquarium or aqua tank 116.

Please delete the paragraph on page 58, lines 10-15, and replace it with the following paragraph:

From oxytower 110, the water may flow through an optional heater or chiller, in order to maintain the water in aquarium or aqua tank 116 at an acceptable temperature for the fish. Heaters and chillers are well known in the aqua culture art. The water then flows through UV sterilizer 113, which kills any microorganisms in the water, such as

bacteria, which may be harmful to the fish, before flowing back to the aquarium. Such UV sterilizers are also well known in the art.

Please delete the paragraph on page 60, lines 10-15, and replace it with the following paragraph:

In one embodiment, mixing eductor 653 may be supported inside bio-filter 107 by a support 657, in the manner illustrated in Figures 28a and 28b. As shown in Figure 28b, the mixing chamber 653b~~653c~~ is supported by a plate 657c, so that the inlet cone of the mixing eductor is contained inside a small chamber composed of perforated plates, or screens, 657a, the top plate 657c and a bottom plate 657b. Water flowing through the perforated plates or screens 657a is entrained into the inlet cone of mixing chamber 653c.

Please delete the paragraph on page 62, lines 8-17, and replace it with the following paragraph:

For large commercial applications, the denitration system 112 may preferably employ the systems described in connection with Figure 17 above. For example, as an aerobic chamber 610, one or more denitration chambers 620 and optionally one or more calcium chambers 630, could be used. For example, in one preferred embodiment, the aerobic chamber could be the chamber described in connection with Figure 24~~25~~; the denitration chamber could be chosen from one of the chambers described in connection with Figures 9 and 11; and either no calcium chamber, or one or more calcium chambers, as described in connection with Figure 25~~24~~ may be employed. In yet another embodiment, only one or more denitration chambers 620 are

employed, with no aerobic chamber, and with either no calcium chamber, or one or more calcium chambers.

Please delete the paragraph on page 64, lines 11-23, to page 65, lines 1-7, and replace it with the following paragraph:

The system of Figure 26 may be modified according to the desired water quality to be obtained and the cost of the system. For example, in one embodiment, desulfator 111 is not employed in the system of Figure 26, so that the water flows directly from denitration chamber 112 to oxytower 110. In yet another embodiment, protein skimmer 109 is not employed, so that the water from bio-filter 107 flows directly to oxytower 110. In yet another embodiment, oxytower 110 is omitted, so that water flows from bio-filter 107 and either the desulfator 111, or the denitration chamber 112 (if the desulfator is not employed), to the protein skimmer 109, and then from the protein skimmer 109 to aquarium or aqua tank 116~~100~~, via the optional chiller/heater and UV sterilizer. In still another embodiment, the order of the protein skimmer and oxytower are reversed, so that water flows from the bio-filter 107 to the oxytower 110 and then to the protein skimmer 109, and then down to the aquarium via the optional chiller/heater and UV sterilizer. In this last embodiment, water may flow from either the desulfator 111, or the denitration chamber 112 (if the desulfator is not used) to either the protein skimmer 109 or the oxytower 110. In yet another embodiment, the protein skimmer, oxytower and desulfator are all omitted, so that water flows from the denitration chamber 112 to the bio-filter 107, and from the bio-filter 107 to the aquarium, via the optional chiller/heater and UV sterilizer. In yet another embodiment, the flow through the oxytower and skimmer may be in parallel so that water flows from the bio-filter 107 to the skimmer and

the oxytower at the same time and then down to the aquarium via the optional chiller/heater and UV sterilizer.

Please delete the paragraph on page 66, lines 5-11.

Please insert the following paragraph on page 67, line 22:

EXAMPLE

A biological system according to the present invention which was similar to the embodiment illustrated in Figure 8 was used to filter a 500 gallon aquarium containing relatively large numbers of fish. The tank initially had a nitrate concentration of approximately 50 ppm. After three weeks of conditioning the water with the above mentioned biological system, the nitrate content of the aquarium was reduced to a safe level, under 5 ppm NO_3^-, and was maintained at about that level for several months.